

**PURDUE SYSTEMS COLLABORATORY LAUNCH**

*Remarks for Administrator Bolden*

September 25, 2015

Thank you all very much.

It's great to join so many friends, including my good friend Professor Dan Dumbacher, who I had the honor of calling my NASA colleague for several years.

If Purdue were ever in the market for a new name – not that you would be -- you could almost call it “the University of NASA.”

Why do I say that? Two words: “Neil. Armstrong.”

Of course, the NASA-Purdue connections actually go well beyond the first human to set foot on the moon:

As I'm sure most of you know, President Daniels' predecessor  
France Cordova was herself a former NASA Chief Scientist.

What's more, 22 NASA astronauts have been Purdue  
Boilermakers.

So this place, these halls, has contributed a tremendous amount  
to the space program and to more broadly, to American  
innovation, ingenuity and discovery.

Therefore, if you had told me that there was a university that was  
doing something so bold and forward-looking as the Systems  
Collaboratory, I would likely have asked, "Is it Purdue?"

## **PURDUE'S REVOLUTIONARY APPROACH**

The great American philosopher William James once wrote, *“Our lives are like islands in the sea or trees in the forest. The maple and the pine may whisper to each other with their leaves ... but the trees also co-mingle their roots in the darkness underground, and the islands also hang together through the ocean’s bottom.”*

The old way of looking at things – both in academia and at big government agencies – was to focus on the surface, where the trees and islands appear to be separate, isolated entities. Human exploration is over here. Human capital is over there.

Engineering is over here. English literature is over there.

That’s the old way of seeing things.

What’s so brilliant and revolutionary about what you’re doing here at Purdue is that you’re no longer looking at these things as islands or trees that are inherently separate.

Instead you're looking to bring those roots that William James wrote about out from under-the-ground and into the daylight where we can study them, embrace them and in fact, look for ways to both strengthen and learn from them.

This is what we're trying to be about at NASA as well.

It's this same spirit that's inspiring a lot of folks throughout our country to take a fresh look at what for many years we've known "STEM" education: science, technology, engineering and math. Today there's a movement afoot to change "STEM" to "STEAM" – with that "A" in there standing for "Arts."

There's a connection between training your brain to arrange notes on a sheet of music or to paint a picture and training it to solve a complex math equation – and perhaps build a rocket or develop a new landing system.

Vincent Van Gogh talked about great things being the product of a bunch of different small things that are brought together. If you think about every little brush stroke that went into one of his paintings, all that attention to detail, you can see what he is talking about.

## **NASA AS AN EXAMPLE**

I can tell you that at NASA we'd be dead in the water if we weren't willing to be dynamic and interdisciplinary in how we approach our mission of *"reaching new heights for the benefit of humankind."*

I thought we could do this simple exercise ... Everyone close your eyes for a moment. The year is sometime in the 2030s. You and your family or friends – or both – are gathered around your video device of choice. Who knows, maybe in the 2030's it's a hologram. Be creative. It's your own daydream; I'm not going to tell you how you have to see it.

Imagine you're all gathered around because there's something very special that's happening and you want to see it live. You want to be around the people who matter most, because it's one of those seminal moments in history you don't want to experience alone. You want to share it.

So you're all gathered around to watch an image that's being beamed to Earth from a rover or even perhaps a robot. The image is of the surface of Mars. From the Martian skies descends a landing vehicle. On the side of it is a big American flag. There's also a blue "meatball" that says "NASA."

The vehicle lands, and when the doors open up, out steps not a rover or a robot but an actual human, American astronaut. Then she – or he – are followed by fellow astronauts of other nations.

It's ok to open your eyes now.

We are now, today, closer than ever before in human history to making this vision a reality. I can tell you that NASA is on a Journey to Mars and there is a new consensus emerging around our plan and timetable for getting our astronauts to the Red Planet in the 2030s.

It's very possible that the person who will take those first steps on Martian soil is here with us at Purdue, or perhaps she or he is in class or in a lab – or maybe they're in high school getting started on that Purdue application.

But that's really only part of the story – and here is why Purdue's multidisciplinary, systems-oriented approach is so relevant and important.

In order to get those astronauts to Mars it's going to take astronauts, astronomers, engineers and scientists, yes.

But let's think for a moment who else it's going to take ...

One group of unsung heroes are the human capital professionals who make sure that the best and the brightest not only want to come to NASA to work on things like rockets and robots – but that they want to *stay* at NASA.

I always say that my top priority at NASA is our people and I am very proud to be able to tell you that for three years in a row we've been named the #1 best place to work in the federal government.

The medical professionals that keep our employees healthy also have an important role to play.

And you can't do anything without funding. At NASA we not only have top-notch scientists, we have an incredible budget team.

We also have people who work around the clock on legislative relations.



We also rely on teams to work in partnership with industry to advance the latest technologies. We rely on communicators who help articulate to the public about where we're going and how we plan to get there.

Everyone has a role to play. The security professionals who make sure our employees are safe. The historians who can give us a perspective on where we've been. The education teams who are working to inspire a new generation to bring us into the future.

Then there are the many people outside the organization who might not immediately come to mind but who are so important. The 5<sup>th</sup> grade teacher who captures her or his students' imagination; the filmmakers who make a movie like "*The Martian*" that inspire a new generation of kids to want to be scientists; the corporate recruiter for one of the companies working to return the launches of American astronauts to American soil;

the journalist who writes the profile that inspires a young girl or boy to want to study science.

The great Nora Jones has said that making music is *“part social, part interaction, part collaboration.”*

So too is putting human beings on Mars!

## **CONCLUSION**

I want to leave you today with a quote from the great Stephen Spielberg: *“When I was a kid, there was no collaboration; it's you with a camera bossing your friends around. But as an adult, filmmaking is all about appreciating the talents of the people you surround yourself with and knowing you could never have made any of these films by yourself.”*

I am truly excited, impressed and awed with the work you are doing here at Purdue to prepare students across a range of disciplines to work together ... to seek out and respect different perspectives ... and ultimately to take us to the furthest reaches of space, progress and imagination.

Congratulations, Purdue University – Boiler UP!